Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554

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In the Matter of	)	
	)	
Advanced Television Systems	)	
and Their Impact upon the	)	MM Docket No. 87-268
Existing Television Broadcast	)	
Service	)	

COMMENTS ON
SIXTH FURTHER NOTICE OF PROPOSED RULE MAKING

These comments on the Sixth Further Notice Of Proposed Rule Making (The Sixth NPRM) are submitted by Dan Nungesser, Chief Engineer for television station WSEE; Vincent Ugoletti, Director of Engineering for Jet Broadcasting and Dennis Spagnolo, Director of Engineering of WQLN-TV & FM.

In order to address certain issues raised in The Sixth NPRM, an ad hoc committee consisting of the three individuals was formed to investigate those areas of concern. Specifically, the committee wishes to comment on :

Digital TV Service Areas
DTV Table of Allotments
Appendix B - Draft DTV Table of Allotments

I Digital TV Service Areas.

The concept of maximizing service areas has benefits to the public, but the current Draft DTV Table of Allotments leads the committee to believe there are caveats to this model. Predicated on the Committee's comments regarding **Draft DTV Table of Allotments** below, the current table creates situations where one station will be allowed to operate at enormous power levels and

acquire equally large service area gains while other stations in the market make marginal to insignificant gains. The committee feels that, should any one station achieve dominance in the market, the quality of news programming presented by those stations with much smaller service areas will be diminished, or that such programming may be eliminated in favor of more cost effective offerings. Similarly, non commercial stations offering alternative programming and relying on contributions from the public for revenue will be unable to compete with the dominant commercial station and can be expected to curtail or terminate operations. The committee suggests that the paradigm employed to determine service area also seek to prevent any station from gaining unfair advantage based on service area or effective radiated power, least we unwittingly create a situation where one station monopolizes the market, not because of exceptional journalism or service to the public, but because of it's ability to reach more people, generate more revenue and ultimately outspend the competition. Perhaps the most equitable and fair approach to maximization of service would be to uniformly increase the percentage of service area for all stations up to the point where interference is caused to signals from neighboring cities.

The committee would also like to point out that, assuming Table B is accurate, the present replication / maximization model isn't necessarily practical in smaller markets, and the committee questions if it will never be fully realized. Case in point: the NBC affiliate in Erie, recently sold for $11.5 million. Table B of The Sixth NPRM proposes the station be granted a maximum power of 2,817 kW. We anticipate it will cost approximately 3.5 million to achieve this power; Thirty percent of the purchase price of the station itself. Then there is the ongoing operating expense, i.e. electricity, replacement tubes and manpower to maintain the equipment. In practice, this station will likely settle for 500 kW. forcing the population in the outer reaches of the proposed service area to go without service.

II DTV Table of allotments.

The allotment modifications allow for a new station operating on DTV allotments created after the initial table to operate at 1,500 kW with a HAAT of 1,000 ft (305 meters). This is done to

allow the new station to serve an area equivalent to the Grade B service area (approx. 107 km radius) of an NTSC UHF station operating at maximum HAAT and power. Assuming this data is accurate, all four stations in Erie, PA would need an average 515 kW. to cover their service areas with the present HAAT's, yet all four stations were allocated only 50 kW.

III Appendix B Draft DTV Table of Allotments

The committee is aware that the table of allotments is preliminary and will probably differ substantially from it's original form. However, we also find certain aspects of the proposed table distressing, should they not be addressed. We accept the notion that DTV will require significantly less power compared to NTSC for equal coverage areas. However, the committee is unable to accept the proposed DTV POWER indicated in Table B as representative of equivalence between
NTSC and DTV coverage areas. We take issue with mathematical inconsistencies between the stated coverage area and the DTV power proposed as necessary to cover that area.

In evaluating the table, the commitee elected to use inverse square law exclusively. We recognize that other factors influence coverage area and that application of inverse square law will not be exactly accurate, however, the examples were selected to minimize error due to the methodology. In short, the methodology was only meant to serve as an indicator of the table's accuracy.

The committee has no reason to believe that inverse square law is anything less than equally applicable to both DTV and NTSC. Where modulation type (i.e. DTV), HAAT and channel are equal, or nearly equal, inverse square law will dictate the relationship between power and service area. We are finding that the power levels projected in table B can deviate by nearly 9 db. from those anticipated when power levels within a market are compared to the transitional service area. The deviation is most notable when comparisons are made between VHF stations moving to a UHF channel, and an existing UHF staying within the core spectrum.

The discrepancy was first noticed when the Erie, PA. market was examined. The committee was only concerned with the relationship between DTV power and transitional DTV coverage; the assumption being that if the DTV power accurately replicates the present NTSC coverage, then the DTV power vs. coverage relationship between stations in any market would follow inverse square law. According to the table, in Erie it will take a 5600% increase in power to cover a 236% increase in area. As of this writing, we are unsure if our observations are the result of the Commission's efforts to maximize coverage, and modification of the transitional area service data was overlooked, or if the program used to create the table is flawed. We are also unsure whether coverage is grossly over or under estimated.

According to Table B,

In Erie PA.
Channel 12 moves to 32, operates at 2,817 kW. at 305 meters HAAT and covers 28,392 sq. km.
Channel 24 moves to 52, operates at 50 kW. at 290 meters HAAT and covers 12,895 sq. km.
Channel 35 moves to 16, operates at 50 kW. at 287 meters HAAT and covers 11,158 sq. km.
Channel 54 moves to 50, operates at 50 kW. at 271 meters HAAT and covers 13,600 sq. km.
Channel 66 moves to 30, operates at 50 kW. at 271 meters HAAT and covers 11,750 sq. km.

A problem is encountered with the table when channel 32's power is reduced to 50 kW. DTV and inverse square law is used to calculate the resulting coverage area. Assuming channel 32's projected coverage area is accurate, inverse square law dictates their coverage would diminish from 95 km. to 12.7 km. radius. Conversely, if it is assumed that channel 50 will service 13,600 sq. km. with only 50 kW. power, then increasing power to equal channel 32's power would create a super station covering 766,250 sq. km. with a radius of 493 km. or 306 miles. Certainly the radius in this case extends far beyond the radio horizon.

Granted, frequency plays a role in the determination of power, however, channel 16 and 52 operate above and below channel 32 and are given equal power to cover relatively equal areas. Further, channels 16 and 52 operate from essentially the same place, with essentially the same

power, coverage area and essentially the same HAAT, yet the table proposed both stations operate at 50 kW. DTV. Height above average terrain plays a role in determination of power. Channel 32 has the highest HAAT of all Erie stations listed in Table B which necessarily means the projected 12.7 km. radius in the examples above will be further reduced when applied to the other stations in the market or the 493 km. radius will be extended.

Another consideration is interference between markets. Channel 50 in Erie will operate at 50 kW. and we assume will service a radius of 65 km. Channel 50 in Pittsburgh will operate at 4,441 kW. and is assumed to have a service radius of 620 km, however, Pittsburgh is only 204 km. from Erie.

There is also the consideration of adjacent channel interference between channels 30 and 32 in Erie. The table proposes placing two stations on nearly adjacent channels and affords one station a 17.5 db power advantage over the other. Inexpensive consumer grade receivers operating in other services are gaining notoriety for their inability to reject adjacent channel interference where substantial power differentials are involved. We suggest significant interference to 50 kW. stations will limit their practical service area when other stations in the market are allowed to operate at power levels as high as 5,000 kW. Receivers capable of operating under such conditions would become unnecessarily expensive to the consumer and further impede the transition to DTV.

We suspect Table B has widespread problems and offer the following examples in support of that claim:

Pittsburgh, PA.
Channel 4 moves to 50, operates at 4441.2 kW, 293 m. HAAT and covers 30917 sq. km.
Channel 2 moves to 25, operates at 4549.5 kW, 302 m. HAAT and covers 30756 sq. km.
Channel 11 moves to 38, operates at 1986.6 kW, 302 m. HAAT and covers 26425 sq. km.
Interestingly, compared to DTV channel 25, channel 50 has a significant channel disadvantage, a 9 meter HAAT disadvantage and a 108.3 kW. power disadvantage but the table says channel 50

will cover 0.5% more area. If channel assignment is as insignificant as this example suggests, then DTV channel 38 should operate at 3,796 kW. to cover his service area.

Lubbock, TX.

Channel 28 moves to 27, operates at 94.0 kW, 256 m. HAAT and covers 15743 sq. km.
Channel 34 moves to 35, operates at 217.1 kW, 256 m. HAAT and covers 14941 sq. km.
DTV channel 35 has a 48 MHz. frequency disadvantage, no HAAT advantage, a 3.6 db. power advantage and only covers 802 sq. km. less than channel 27. Ignoring disadvantages, channel 27 will need 229 kW. to service their interim coverage area based on channel 35 data. This is more than channel 35's power.

Tampa, FL.

Channel 8 moves to 54 , operates at 1572.5 kW, 471 m. HAAT and covers 38271 sq. km.
Channel 28 moves to 57 , operates at 175.2 kW, 471 m. HAAT and covers 25860 sq. km.
DTV channel 54 has an 18 MHz frequency advantage, no HAAT advantage, a 9.5 db. power advantage and covers 48% more area. If the channel 54 numbers are accurate, channel 57 will need 1,062.5 kW. to service their interim coverage area.

Fort Myers, FL.

Channel 11 moves to 53, operates at 1552 kW, 451 m. HAAT and covers 37689 sq. km.
Channel 20 moves to 55, operates at 415.7 kW, 451 m. HAAT and covers 22752 sq. km.
HAAT and channels are nearly identical. Applying inverse square law, channel 55 would need 937 kW. to cover his transitional service area.

In St. Petersburg, FL.

Channel 38 moves to 25, operates at 71.6 kW, 438 m. HAAT and covers 21407 sq. km.
Channel 44 moves to 14, operates at 417.2 .kW, 454 m. HAAT and covers 29149 sq. km.
DTV channel 14 has a 66 MHz frequency advantage, a 16 meter HAAT advantage, a 7.7 db. power advantage and only covers 7,742 sq. km more than channel 25. Ignoring disadvantages, channel 25 will need 306 kW. to service their interim coverage area.

Detroit, MI.

Channel 56 moves to 41, operates at 111.6 kW, 293 m. HAAT and covers 15356 sq. km.

Channel 62 moves to 43, operates at 50.0 .kW, 296 m. HAAT and covers 14141 sq. km.

DTV channel 41 has a 12 MHz. frequency advantage, a 3 meter HAAT advantage, a 13.5 db. power advantage and only covers 1,215 sq. km. more than channel 43. Ignoring disadvantages, channel 43 will need 102.8 kW. to service their interim coverage area.

Oklahoma City, OK.

Channel 5 moves to 28, operates at 3231.2 kW, 464 m. HAAT and covers 40088 sq. km.

Channel 13 moves to 27, operates at 1575.1 kW, 465m. HAAT and covers 37933 sq. km.

DTV channel 28 has a 6 MHz. frequency disadvantage, 1 meter HAAT disadvantage, a 3.1 db. power advantage and only covers 2,155 sq. km. more than channel 27. Ignoring disadvantages, channel 27 will need 3057.5 kW. to service their interim coverage area.

Conclusion

The committee supports the Commissions intent to offer service to a greater portion of the public, but we submit that care must be taken to preserve and protect the status of existing news organizations, alternative sources of programming and that a monopoly not be inadvertently created. We empathize with the Commission's plight in creating the table of allotments and respectfully suggest the Commission may have understated the magnitude of the task in describing it as "extremely difficult." Indeed, we might have described it as monumental and question if the objective can be accomplished in any reasonable period of time. With this in mind, we respectfully request the Commission consider abandoning the replication / maximization paradigm in lieu of a 107 km. Grade B radius model. If the Commission feels the problems with channel selection can be rectified, we submit that the most equitable solution to maximization would be to uniformly increase the percentage of coverage area of all stations in any given market, up to the point where Grade B curves begin to overlap with neighboring markets. This model would preserve the

existing coverage relationships between competing stations, prevent stations from acquiring unfair advantage and still fall within the Commission's object of increasing service area.

Respectfully Submitted by

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